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10/726,320

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Jung-Don Lim

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11/18/2004

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EXAMINER

LUU, AN T

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/726,320

**Applicant(s)**

LIM ET AL.

**Examiner**

An T. Luu

**Art Unit**

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 6-11 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by the Sakurai reference (U.S. Patent 4,853,654).

Sakurai discloses in figure 12 an apparatus for generating a refresh clock signal (output of 18) comprising a first MOS transistor diode-connected (P16) for outputting a first bias voltage (voltage applied to gates of P11-15), a source of the first MOS transistor being connected to a supply voltage (Vdd); a second MOS transistor diode-connected (N16) for outputting a second bias voltage (voltage applied to gates of P11-15), a source of the second MOS transistor being connected to ground voltage (Vss); a bias current control means (B6) having a predetermined number of serial-connected diodes (D2) for serving as a resistance in inverse proportion to a temperature, wherein the bias current control means is coupled between the first MOS transistor and the second MOS transistor to control the first and second bias voltages by using the resistance; and a refresh clock generator (P11-15; N11-15; N1-5; P1-5) generating the refresh clock signal having the frequency which is controlled or adjusted based on the first and second bias voltages as required by claim 1.

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As to claims 2 and 3, figure 12 shows 6 diodes in series connection and  $V_{dd}=4V$  (col. 3, line 67) which satisfies the recitation "*the predetermined number is greater than value which divides the supply voltage by a threshold voltage of the diode*" of the claim (i.e  $6 > 4/0.7$ ).

As to claim 6, transistors (P11-15; N11-15; N1-5; P1-5) are configured as a ring oscillator having a number of inverters.

As to claim 7, a third MOS transistor and a fourth MOS transistor read on transistors P11 and N11 of figure 12, respectively.

As to claim 8, it is rejected for reciting an inherent operational characteristic of a diode since a diode is a temperature related device. Therefore, its operating voltage is normally varied with respect to its temperature coefficient.

As to claims 9-11 and 14-16, the scopes of these claims are similar to that of claims 1-3 and 6-8. Therefore, they are rejected for the same reasons set forth above.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-5 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Sakurai reference (U.S. Patent 4,853,654) in view of the Dosho et al reference (U.S. Patent 5,751,142).

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Sakurai discloses all the claimed inventions except for disclosing a diode being constructed by either NMOS or PMOS transistor as specifically required by claims 4 and 5.

Dosho et al discloses in figure 6 a diode being constructed by either NMOS or PMOS transistor.

It would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Dosho into that of Sakurai since it is well known in the art that a diode can be configured in many different ways (i.e. by NMOS, PMOS, FET, bi-polar...). Selection any known transistor to implement a diode is seen as routine in the art depend upon designer preference and/or availability of a particular transistor.

As to claims 12-13, the scopes of these claims are similar to that of claims 4-5. Therefore, they are rejected for the same reason set forth above.

### *Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to An T. Luu whose telephone number is 571-272-1746. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

An T: Luu  
11-11-04 *KL*

  
TIMOTHY P. CALLAHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800